

LISTING OF CLAIMS

1. ~~(Currently Amended)~~ A method to determine an antennae array weight set corresponding to a subscriber unit (SU) for cellular communications between the SU and a first base station (BS) of a system, the system including the first BS and a number of other base stations, the method comprising:

transmitting a plurality of test pilot downlink signals from the first BS to the SU, each test pilot downlink signal processed with a different weight set than the other test pilot downlink signals, at least one of the plurality of the test pilot downlink signals comprising a CDMA pilot signal associated with the first BS, and each at least one of the plurality of test pilot downlink ~~signal~~ signals comprising a CDMA pilot signal associated with one of the other, non-neighboring base stations;

receiving a report signal from the SU for at least one of the test pilot downlink signals; and

selecting a weight set from the plurality of weight sets based, at least in part, on the received report signal.

2. ~~(Currently Amended)~~ The method of Claim 1, wherein transmitting the pilot signal associated with the first BS further comprising comprises transmitting a CDMA pilot downlink signal from the first BS to the SU, wherein the CDMA pilot downlink signal includes a first identifier identifying the first BS.

3. (Previously Presented) The method of Claim 2 wherein one of said test pilot downlink signals includes a second identifier that is different from said first identifier, the second identifier identifying a second BS, the second BS comprising one of the other base stations in the system.

4. (Previously Presented) The method of Claim 3 wherein said second BS is located from said first BS by a distance sufficient to assure that transmission from the first BS to the SU of said one test pilot signal including the second identifier will not interfere with communications between said second BS and SUs currently communicating with said second BS.

5. (Previously Presented) The method of Claim 3, further comprising:

receiving a CDMA pilot downlink signal including the second identifier from the second BS, said SU generating and transmitting one of said report signals to said first BS, said report signal indicating the signal strength of said CDMA pilot downlink signal from the second BS; and

determining whether to handoff said SU to said second BS based on the signal strengths reported for said CDMA pilot signal transmitted by the first BS, said one test pilot signal including the second identifier transmitted by the first BS, and said CDMA pilot signal transmitted by the second BS.

6. (Previously Presented) The method of Claim 1 wherein said cellular communications conform to a cellular standard in which each SU automatically monitors each of a plurality of CDMA pilot downlink signals in a set of CDMA pilot downlink signals, said test pilot signals selected from the set of CDMA pilot downlink signals.

7. (Previously Presented) The method of Claim 6 wherein said cellular standard is IS-95 and wherein said set of CDMA pilot downlink signals comprises one of a Candidate Set, a Neighbor Set, and a Remaining Set as defined in that standard.

8. (Previously Presented) The method of claim 1, further comprising:

determining whether to hand off the SU to a second BS based, at least in part, on the received report signal, the second BS comprising one of the other base stations in the system.

9. (Previously Presented) The method of claim 8, further comprising:

sending an estimate of the weight set to be used after handoff to the second BS.

10. (Currently Amended) An article of manufacture containing a machine-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform operations comprising:

transmitting a plurality of test pilot downlink signals from a first base station (BS) of a system to a SU, the system including the first BS and a number of other base stations, each test pilot downlink signal processed with a different weight set from the other test pilot downlink signals, at least one of the plurality of the test pilot downlink signals comprising a CDMA pilot signal associated with the first BS, and each at least one of the plurality of test pilot downlink ~~signal~~ signals comprising a CDMA pilot signal associated with one of the other, non-neighboring base stations;

receiving a report signal from the SU for at least one of the test pilot downlink signals;
and

selecting a weight set from the plurality of weight sets based, at least in part, on the received report signal.

11. (Currently Amended) The article of claim 10, wherein the instructions, when executed by the processor, cause the processor to perform operations wherein transmitting the pilot signal associated with the first BS further ~~comprising~~ comprises transmitting CDMA pilot downlink signal from the first BS to the SU, wherein the CDMA pilot downlink signal includes a first identifier identifying the first BS.

12. (Previously Presented) The article of claim 11, wherein one of the test pilot downlink signals includes a second identifier that is different from the first identifier, the second identifier identifying a second BS, the second BS comprising one of the other base stations in the system.

13. (Previously Presented) The article of claim 12, wherein the second BS is displaced from the first BS by a distance sufficient to assure that transmission from the first BS to the SU of said one test pilot signal including the second identifier will not interfere with communications between the second BS and SUs currently communicating with the second BS.

14. (Previously Presented) The article of claim 12, wherein the instructions, when executed by the processor, cause the processor to perform operations further comprising:

receiving a CDMA pilot downlink signal including the second identifier from the second BS, the SU generating and transmitting one of the report signals to the first BS, the report signal indicating the signal strength of the CDMA pilot downlink signal from the second BS; and

determining whether to handoff the SU to the second BS based on the signal strengths reported for the CDMA pilot signal transmitted by the first BS, said one test pilot signal including the second identifier transmitted by the first BS, and the CDMA pilot signal transmitted by the second BS.

15. (Previously Presented) The article of claim 10, wherein cellular communications between the SU and first BS conform to a cellular standard in which each SU automatically monitors each of a plurality of CDMA pilot downlink signals in a set of CDMA pilot downlink signals, the test pilot signals selected from the set of CDMA pilot downlink signals.

16. (Previously Presented) The article of claim 15, wherein the cellular standard is IS-95 and wherein the set of CDMA pilot downlink signals comprises one of a Candidate Set, a Neighbor Set, and a Remaining Set.

17. (Previously Presented) The article of claim 10, having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to further perform the operation comprising:

determining whether to hand off the SU to a second BS based, at least in part, on the received report signal, the second BS comprising one of the other base stations in the system.

18. (Previously Presented) The article of claim 17, having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to further perform the operation comprising:

sending an estimate of the weight set to be used after handoff to the second BS.

19. (~~Currently Amended~~) An apparatus comprising:

receive signal circuitry for connecting with an array of antennae of a base station of a system, the system including the base station and a number of other base stations, the receive signal circuitry to receive ~~at least one report signal signals, at least one the report signal~~ corresponding to a pilot signal associated with the base station, and at least one report signal corresponding to at least one test pilot signal, the at least one a test pilot signal comprising a CDMA pilot signal associated with one of the other, non-neighboring base stations; and

a transmit weight processor, coupled with the receive signal circuitry, to determine a weight set applied to a downlink signal based, at least in part, on the received report signal.

20. (Previously Presented) The apparatus of claim 19, further comprising:

transmit circuitry, coupled with the transmit weight processor, to apply the determined weight set to beamform a downlink signal.

21. (Previously Presented) The apparatus of claim 20, wherein the downlink signal is a CDMA pilot signal used by the base station.

22. (Previously Presented) The apparatus of claim 20, wherein the downlink signal is a data signal.

23. (Previously Presented) The apparatus of claim 20, further comprising:

a pilot signal processor, coupled with the transmit circuitry, to generate a plurality of test pilot signals.

24. (Currently Amended) A method to determine an antennae array weight set corresponding to a subscriber unit (SU) for communications between the SU and a first base station (BS) of a system, the system including the first BS and a number of other base stations, the method comprising:

transmitting a plurality of test pilot downlink signals from the first BS to the SU, each test pilot downlink signal processed with a different weight set than the other test pilot downlink signals, at least one of the plurality of test pilot downlink signals comprising a pilot signal associated with the first BS, and each at least one of the plurality of test pilot downlink signal signals comprising a pilot signal associated with one of the other base stations that is typically used for at least one of controlling power and base station hand off, the one of the other base stations being sufficiently spatially separated from the first base station to not produce interference between the first BS and the SU;

receiving a report signal from the SU for at least one of the pilot downlink signals; and

determining the weight set corresponding to the SU based on the report signal.

25. (Currently Amended) The method of Claim 24 wherein transmitting the pilot signal associated with the first BS further ~~comprising~~ comprises transmitting a pilot downlink signal from the first BS to the SU, wherein the pilot downlink signal includes a first identifier identifying the first BS.

26. (Previously Presented) The method of Claim 25 wherein one of said test pilot downlink signals includes a second identifier that is different from said first identifier, the second identifier identifying a second BS, the second BS comprising one of the other base stations in the system.

27. ~~(Canceled)~~

28. (Previously Presented) The method of Claim 26, further comprising:

receiving a pilot downlink signal including the second identifier from the second BS, said SU generating and transmitting one of said report signals to said first BS, said report signal indicating the signal strength of said pilot downlink signal from the second BS; and

determining whether to handoff said SU to said second BS based on the signal strengths reported for said pilot signal transmitted by the first BS, said one test pilot signal including the second identifier transmitted by the first BS, and said pilot signal transmitted by the second BS.

29. (Previously Presented) The method of Claim 24 wherein said communications conform to a cellular standard in which each SU automatically monitors each of a plurality of pilot downlink signals in a set of pilot downlink signals, said test pilot signals selected from the set of pilot downlink signals.

30. (Previously Presented) The method of Claim 29 wherein said cellular standard is IS-95 and wherein said set of pilot downlink signals comprises one of a Candidate Set, a Neighbor Set, and a Remaining Set as defined in that standard.

31. (Previously Presented) The method of claim 24, further comprising:

determining whether to hand off the SU to a second BS based, at least in part, on the received report signal, the second BS comprising one of the other base stations in the system.

32. (Previously Presented) The method of claim 31, further comprising:

sending an estimate of the weight set to be used after handoff to the second BS.

33. (Currently Amended) An article of manufacture containing a machine-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform operations comprising:

transmitting a plurality of test pilot downlink signals from a first base station (BS) of a system to a SU, the system including the first BS and a number of other base stations, at least one of the plurality of test pilot downlink signals comprising a pilot signal associated with the first BS, and each at least one of the plurality of test pilot downlink signal signals comprising a pilot signal associated with one of the other base stations that is typically used for at least one of power control and base station hand off, each test pilot downlink signal processed with a different weight set from the other test pilot downlink signals, the one of the other base stations being sufficiently spatially separated from the first base station to not produce interference between the first BS and the SU;

receiving a report signal from the SU for at least one of the test pilot downlink signals;
and

determining the weight set corresponding to the SU based on the report signal.

34. (Currently Amended) The article of claim 33, wherein the instructions, when executed by the processor, cause the processor to perform operations wherein transmitting the pilot signal associated with the first BS further comprising comprises transmitting a pilot downlink signal from the first BS to the SU, wherein the pilot downlink signal includes a first identifier identifying the first BS.

35. (Previously Presented) The article of claim 34, wherein one of the test pilot downlink signals includes a second identifier that is different from the first identifier, the second identifier identifying a second BS, the second BS comprising one of the other base stations in the system.

36. ~~(Canceled)~~

37. (Previously Presented) The article of claim 35, wherein the instructions, when executed by the processor, cause the processor to perform operations further comprising:

receiving a pilot downlink signal including the second identifier from the second BS, the SU generating and transmitting one of the report signals to the first BS, the report signal indicating the signal strength of the pilot downlink signal from the second BS; and

determining whether to handoff the SU to the second BS based on the signal strengths reported for the first, second, and third pilot signal transmitted by the first BS, said one test pilot signal including the second identifier transmitted by the first BS, and said pilot signal transmitted by the second BS.

38. (Previously Presented) The article of claim 33 wherein communications between the SU and first BS conform to a cellular standard in which each SU automatically monitors each of a plurality of pilot downlink signals in a set of pilot downlink signals, the test pilot signals selected from the set of pilot downlink signals.

39. (Previously Presented) The article of claim 38, wherein the cellular standard is IS-95 and wherein the set of pilot downlink signals comprises one of a Candidate Set, a Neighbor Set, and a Remaining Set as defined in that standard.

40. (Previously Presented) The article of claim 33, further comprising instructions which, when executed by a processor, cause the processor to further perform the operation comprising:

determining whether to hand off the SU to a second BS based, at least in part, on the received report signal, the second BS comprising one of the other base stations in the system.

41. (Previously Presented) The article of claim 40 further comprising instructions which, when executed by a processor, cause the processor to further perform the operation comprising:

sending an estimate of the weight set to be used after handoff to the second BS.

42. (Currently Amended) An apparatus comprising:

receive signal circuitry for connecting with an array of antennae of a base station of a system, the system including the base station and a number of other base stations, the receive signal circuitry to receive ~~at least one report signal~~ signals, at least one the report signal corresponding to a pilot signal associated with the base station, and at least one report signal corresponding to at least one test pilot signal, the a test pilot signal comprising a pilot signal associated with one of the other base stations that is typically used for at least one of controlling power and base station hand offs, the one of the other base stations being sufficiently spatially separated from the first base station to not produce interference between the first BS and the SU; and

a transmit weight processor, coupled with the receive signal circuitry, for determining a weight set applied to a downlink signal, the weight set determined by the at least one report signal.

43. (Previously Presented) The apparatus of claim 42, further comprising:

transmit circuitry, coupled with the transmit weight processor, the transmit circuitry applying the weight set to beamform a downlink signal.

44. (Previously Presented) The apparatus of claim 43, wherein the downlink signal is a pilot signal normally used by the BS.

45. (Previously Presented) The apparatus of claim 43, wherein the downlink signal is a data signal.

46. (Previously Presented) The apparatus of claim 43, further comprising:

a pilot signal processor, coupled with the transmit circuitry, to generate a plurality of test pilot signals.
